

Remarks

Reconsideration of this Application is respectfully requested.

I. Status Of The Claims and Support For The Amendments

Claims 20, 22, 31 and 42 have been amended.

Claims 1, 3-28, 30-35 and 37-43 are pending in the application, with claims 1, 22 and 31 being the independent claims.

The present application is the U.S. national phase of international application no. PCT/US03/08110, which published as publication no. WO 03/078497.

Support for the amendment of claim 20 is found in the Specification of publication no. WO 03/078497 ("Specification") at page 5, paragraph [0018], lines 9-10.

Support for the amendment of claims 22 and 31 is found in the Specification at page 4, paragraph [0017], lines 4-5; page 21, paragraph [0043], lines 15-16; and page 21, last line to page 22, first line.

The amendment of claim 42 corrects a typographical error.

Based on the above amendments and the following remarks, Applicants respectfully request that the Examiner reconsider and withdraw all of the outstanding rejections.

II. The Rejection Under 35 U.S.C. § 112, First Paragraph, Should Be Withdrawn

Claims 22-28 and 41 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the Examiner noted that "Applicants' newly added range of mean particle size values for

their melamine is a limitation which lacks support in applicants' originally filed supporting disclosure. This is a new matter rejection." Office Action at page 2. Applicants respectfully traverse this rejection.

In Amendment and Response filed December 28, 2006, claim 22 was amended by adding a limitation "wherein the melamine has a mean particle size of about 28 microns or less," and claim 41 was added, which recites "[t]he foam of claim 1 wherein the melamine has a mean particle size of about 28 microns or less." Support for the amendment of claim 22 and for claim 41 is found in the Specification at paragraph [0017], lines 4-5. Thus, the amendment of claim 22 and the addition of claim 41 did not introduce new matter. Applicants respectfully request that this rejection be reconsidered and withdrawn.

III. The Rejection Under 35 U.S.C. § 112, Second Paragraph, Should Be Withdrawn

Claim 42 was rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. Applicants respectfully traverse this rejection.

Claim 42 has been amended to delete the word "process" and insert the word "foam." It is believed that as a result of this amendment, the ground for this rejection is moot. Applicants respectfully request that this rejection be reconsidered and withdrawn.

IV. The Rejections Under 35 U.S.C. § 102 Should Be Withdrawn

A. The Rejections Over Grace '893 Should Be Withdrawn

Claims 1, 3-28, 41 and 42 were rejected under 35 USC § 102(b) as allegedly anticipated by U.S. Patent No. 4,892,893 to Grace *et al.* (hereinafter "Grace '893"). Applicants respectfully traverse this rejection.

1. Claims 1, 3-21, 41 and 42

Claim 1 recites that the claimed foam comprises "less than about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam, wherein the foam passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test."

The Examiner stated:

Grace *et al.* disclose methods for preparing polyurethane foams by mixing and reacting polyol, isocyanate, water, melamine, and other fire retardants under mixing conditions reading on those claimed (see column 2 line 22 - column 7 line 48 and the examples, as well as, the entire document). Densities as claimed are disclosed, and, owing to the physical material contents, the claimed flame test, IFD and air flow values are seen to be inherent to the teachings of Grace *et al.*

It is held, in the instant case, that the teachings of Grace *et al.* provide for contents of melamine and particle size values with specificity as to providing for the respective values and their effects on resultant compositions such that anticipation of these elements of the claims by Grace *et al.* is evident.

Office Action at pages 3-4. Applicants respectfully disagree.

Grace '893 fails to anticipate claim 1 because Grace '893 fails to teach a foam that contains melamine and another flame retardant that necessarily passes both the open

flame (vertical) resistance portion and the smoldering resistance portion of the California 117 Burn Test. Indeed, in Table I (columns 9 and 10) of Grace '893, Grace '893 teaches that a foam that contains melamine and another flame retardant (FYROL FR-2) (examples 7 and 11) *failed* the vertical portion of the California 117 Burn Test. Thus, Grace '893 teaches that not all foams that contain melamine and another flame retardant pass both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test.

The Examiner relies on Grace '893 for an allegedly inherent teaching of the claimed invention. However, such reliance is misplaced. A prior art reference which does not expressly describe each and every limitation of a claim may nevertheless inherently anticipate. *See Mehl/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362 , 1366 (Fed. Cir. 1999). However, in order for a prior art document to inherently anticipate a claimed invention, inherency must be a *necessary* result, and not merely a possible result. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is insufficient to prove anticipation." *Continental Can Company v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991) (citation omitted) (emphasis in original).

As discussed above, Grace '893 fails to anticipate claim 1 because Grace '893 fails to teach a foam that contains melamine and another flame retardant that necessarily passes both the open flame (vertical) resistance portion and the smoldering resistance portion of the California 117 Burn Test. Therefore, Grace '893 fails to inherently anticipate the invention of claim 1.

Claims 3-21, 41 and 42 depend, either directly or indirectly, from independent claim 1. Thus, for the same reasons that Grace '893 fails to anticipate claim 1, Grace '893 fails to anticipate claims 3-21, 41 and 42. Moreover, the Examiner has failed to explain why each of claims 3-21, 41 and 42 are allegedly anticipated by Grace '893. Merely stating that "[d]ensities as claimed are disclosed, and owing to the physical material contents, the claimed flame test, IFD, and air flow values are seen to be inherent to the teachings of Grace et al." is not sufficient to establish why the claimed invention is allegedly anticipated by Grace '893.

Applicants respectfully request that the rejection of claims 1, 3-21, 41 and 42 over Grace '893 be reconsidered and withdrawn.

2. *Claims 22-28*

As amended, claim 22 recites a slab stock process for making a polyurethane foam comprising adding from about 5 to about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam, wherein the melamine has a mean particle size of about 28 microns or less, and wherein the foam produced by the process passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test.

As discussed above, Grace '893 fails to teach a foam that contains melamine and another flame retardant that necessarily passes both the open flame (vertical) resistance portion and the smoldering resistance portion of the California 117 Burn Test. Therefore, Grace '893 fails to anticipate the process of claim 22, either expressly or inherently.

Claims 23-28 depend, either directly or indirectly, from independent claim 22.

Thus, for the same reasons that Grace '893 fails to anticipate claim 22, Grace '893 fails to anticipate claims 23-28. Moreover, the Examiner has failed to explain why each of claims 23-28 are allegedly anticipated by Grace '893.

Applicants respectfully request that the rejection of claims 22-28 over Grace '893 be reconsidered and withdrawn.

B. The Rejections Over Grace '459 Should Be Withdrawn

Claims 1, 3-28, 41 and 42 were rejected under 35 USC § 102(b) as allegedly anticipated by U.S. Patent No. 4,849,459 to Grace *et al.* (hereinafter "Grace '459"). Applicants respectfully traverse this rejection.

1. Claims 1, 3-21, 41 and 42

Claim 1 recites that the claimed foam comprises "less than about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam, wherein the foam passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test."

The Examiner stated:

Grace *et al.* disclose methods for preparing polyurethane foams by mixing and reacting polyol, isocyanate, water, melamine, and other fire retardants under mixing conditions reading on those claimed (see the entire document). Densities as claimed are disclosed, and, owing to the physical material contents, the claimed flame test, IFD and air flow values are seen to be inherent to the teachings of Grace *et al.*

It is held, in the instant case, that the teachings of Grace *et al.* provide for contents of melamine and particle size values with specificity as to providing for the respective values and their effects on resultant compositions such that anticipation of these elements of the claims by Grace *et al.* is evident.

Office Action at page 4. Applicants respectfully disagree.

Grace '459 fails to teach the claimed foam, because Grace '459 fails to teach less than about 10 weight percent melamine in combination with less than about 10 weight percent of one or more additional flame retardant compounds. Instead, Grace '459 discloses a foam product that contains between 30 and 55 weight percent melamine. *See* Grace '459, col. 1, lines 61-68. Thus, the melamine content in Grace '459 is higher than the melamine content of claim 1 of the subject invention.

Moreover, as discussed above, Grace '893 teaches that not all foams that contain melamine and one or more other flame retardants pass both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Grace '459 fails to teach a foam having the recited amounts of melamine and other flame retardant(s) that necessarily passes both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Therefore, Grace '459 fails to anticipate the invention of claim 1, either expressly or inherently.

Claims 3-21, 41 and 42 depend, either directly or indirectly, from independent claim 1. Thus, for the same reasons that Grace '459 fails to anticipate claim 1, Grace '459 fails to anticipate claims 3-21, 41 and 42. Moreover, the Examiner has failed to explain why each of claims 3-21, 41 and 42 are allegedly anticipated by Grace '459. Merely stating that "[d]ensities as claimed are disclosed, and owing to the physical

material contents, the claimed flame test, IFD, and air flow values are seen to be inherent to the teachings of Grace et al." is not sufficient to establish why the claimed invention is allegedly anticipated by Grace '459.

Applicants respectfully request that the rejection of claims 1, 3-27, 41 and 42 over Grace '459 be reconsidered and withdrawn.

2. Claims 22-28

As amended, claim 22 recites "[a] slab stock process for making a polyurethane foam comprising adding from about 5 to about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam, wherein the melamine has a mean particle size of about 28 microns or less, and wherein the foam passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test."

As discussed above, Grace '459 fails to teach a foam that contains the recited amounts of melamine and another flame retardant(s) that necessarily passes both the open flame (vertical) resistance portion and the smoldering resistance portion of the California 117 Burn Test. Therefore, Grace '459 fails to anticipate the process of claim 22, either expressly or inherently.

Claims 23-28 depend, either directly or indirectly, from independent claim 22. Thus, for the same reasons that Grace '459 fails to anticipate claim 22, Grace '459 fails to anticipate claims 23-28. Moreover, the Examiner has failed to explain why each of claims 23-28 are allegedly anticipated by Grace '459.

Applicants respectfully request that the rejection of claims 22-28 over Grace '459 be reconsidered and withdrawn.

C. The Rejections Over Ricciardi Should Be Withdrawn

Claims 1, 3-28, 41 and 42 were rejected under 35 USC § 102(b) as allegedly anticipated by U.S. Patent No. 4,757,093 to Ricciardi *et al.* (hereinafter "Ricciardi"). Applicants respectfully traverse this rejection.

1. Claims 1, 3-21, 41 and 42

Claim 1 recites that the claimed foam comprises "less than about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam, wherein the foam passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test."

The Examiner stated:

Ricciardi *et al.* disclose methods for preparing polyurethane foams by mixing and reacting polyol, isocyanate, water, melamine, and other fire retardants under mixing conditions reading on those claimed (see column 3 line 9 - column 5 line 65 and the examples, as well as, the entire document). Densities as claimed are disclosed, and, owing to the physical material contents, the claimed flame test, IFD and air flow values are seen to be inherent to the teachings of Ricciardi *et al.*

It is held, in the instant case, that the teachings of Ricciardi *et al.* provide for contents of melamine and particle size values with specificity as to providing for the respective values and their effects on resultant compositions such that anticipation of these elements of the claims by Ricciardi *et al.* is evident.

Office Action at pages 4-5. Applicants respectfully disagree.

As discussed above, Grace '893 teaches that not all foams that contain melamine and one or more other flame retardants pass both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Ricciardi fails to teach the claimed foam, because Ricciardi fails to teach a foam containing less than about 10 weight percent melamine in combination with less than about 10 weight percent of one or more additional flame retardant compounds that necessarily passes both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Therefore, Ricciardi fails to anticipate the invention of claim 1, either expressly or inherently.

Claims 3-21, 41 and 42 depend, either directly or indirectly, from independent claim 1. Thus, for the same reasons that Ricciardi fails to anticipate claim 1, Ricciardi fails to anticipate claims 3-21, 41 and 42. Moreover, the Examiner has failed to explain why each of claims 3-21, 41 and 42 are allegedly anticipated by Ricciardi. Merely stating that "[d]ensities as claimed are disclosed, and owing to the physical material contents, the claimed flame test, IFD, and air flow values are seen to be inherent to the teachings of Ricciardi et al." is not sufficient to establish why the claimed invention is allegedly anticipated by Ricciardi.

Applicants respectfully request that the rejection of claims 1, 3-27, 41 and 42 over Ricciardi be reconsidered and withdrawn.

2. Claims 22-28

As amended, claim 22 recites a slab stock process for making a polyurethane foam comprising adding from about 5 to about 10 weight percent melamine based on the

total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam, wherein the melamine has a mean particle size of about 28 microns or less, and wherein the foam produced by the process passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test.

As discussed above, Ricciardi fails to teach a foam that contains the recited amounts of melamine and another flame retardant(s) that necessarily passes both the open flame (vertical) resistance portion and the smoldering resistance portion of the California 117 Burn Test. Therefore, Ricciardi fails to anticipate the process of claim 22, either expressly or inherently.

Claims 23-28 depend, either directly or indirectly, from independent claim 22. Thus, for the same reasons that Ricciardi fails to anticipate claim 22, Ricciardi fails to anticipate claims 23-28. Moreover, the Examiner has failed to explain why each of claims 23-28 are allegedly anticipated by Ricciardi.

Applicants respectfully request that the rejection of claims 22-28 over Ricciardi be reconsidered and withdrawn.

V. The Rejections Under 35 U.S.C. § 103 Should Be Withdrawn

A. The Rejection Over Grace '893 In View Of Eiben and Webster Should Be Withdrawn

Claims 30-40 and 43 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Grace '893 in view of U.S. Patent No. 5,789,457 to Eiben *et al.* (hereinafter "Eiben") and U.S. Patent No. 3,862,921 to Webster *et al.* (hereinafter "Webster").

Applicants respectfully traverse this rejection. A *prima facie* case of obviousness has not been established.

As amended, claim 31 recites "[a] carbon dioxide frothing process for making a polyurethane foam composition comprising: adding from about 5 to about 10 weight percent melamine based on the total weight of the foam and less than about 10 weight percent of one or more additional flame retardant compounds based on the total weight of the foam; pre-blending the melamine with a polyol under high shear prior to foaming; and filtering the pre-blend prior to entry into a mixing head, wherein the foam composition produced by the process passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test."

Even in combination, Grace '893, Eiben and Webster would not have suggested the claimed process. Moreover, even in combination, Grace '893, Eiben and Webster would not have provided a reasonable expectation of success in obtaining the claimed process, which, as amended, recites that the foam composition passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test.

It is the Examiner's view that "Grace et al. differs from applicants' claims in that it does not particularly require filtering of its mixtures before or after passing through the mixing head." Office Action at page 5. Indeed, Grace teaches away from filtering a composition containing melamine: Grace '893 teaches that "[i]f the particular equipment utilizes filter screens in the polyol side, these must be removed, or the relatively large melamine particles will quickly result in a plugged filter." Grace '893 at column 7, lines 29-32.

It is apparently the Examiner's view that Eiben and Webster cure the deficiency of Grace '893, because Eiben discusses filtering through a fine-meshed screen in the Abstract, and because Webster discusses filtering at column 6, lines 8-15. The Examiner's reliance on Eiben and Webster is incorrect. Neither Eiben nor Webster discuss melamine. Grace '893 specifically teaches that filtering a composition containing melamine should be avoided. A combination of prior art documents that render the prior art, *i.e.*, Grace '893, unsatisfactory for its intended purpose negates any suggestion to make the proposed modification. M.P.E.P. § 2143.01, Part V. Here combining Eiben and Webster does just that -- the combination renders Grace '893 unsatisfactory for its intended purpose, because according to Grace '893, filtering would result in melamine plugging the filter.

The Examiner stated, "[a]s for Grace et al.'s removal of polyol filters in its processes (column 7 lines 24-32), it is held that all disclosures of the prior art, including unpreferred or auxiliary embodiments, must be considered in determining obviousness." The Examiner apparently view's Grace '893 as teaching that removal of filters is a preferred or auxiliary embodiment. Applicants respectfully disagree. As discussed above, Grace '893 specifically teaches that filtering a composition containing melamine should be avoided.

Grace '893 is silent regarding a carbon dioxide frothing process. Neither Eiben nor Webster discuss the use of melamine as a flame retardant. Moreover, as amended, claim 31 recites that the foam composition passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Even if Grace '893, Eiben and Webster could be properly combined, and they cannot be, it is evident from

Grace '893 (discussed above) that not all melamine-containing foams pass both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Thus, even in combination, Grace '893, Eiben and Webster would not have provided a reasonable expectation of success in obtaining carbon dioxide frothing process that provides a foam composition that passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test.

Claims 30, 32-40 and 43 depend, either directly or indirectly, from independent claim 31. Thus, for the same reasons that Grace '893, Eiben and Webster would not have suggested the process of claim 31, Grace '893, Eiben and Webster would not have suggested the process of claims 30, 32-40 and 43. Moreover, the Examiner has failed to explain why each of claims 30, 32-40 and 43 would allegedly have been obvious over Grace '893, Eiben and Webster.

A *prima facie* case of obviousness has not been established. Applicants respectfully request that this rejection be reconsidered and withdrawn.

B. The Rejection Over Ricciardi In View Of Eiben and Webster Should Be Withdrawn

Claims 30-40 and 43 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Ricciardi in view of Eiben and Webster. Applicants respectfully traverse this rejection. A *prima facie* case of obviousness has not been established.

Ricciardi relates to a flame retardant melamine containing polyurethane foam in which between 15 and 500 percent by weight melamine is used to replace "a minor portion" of the amount of a liquid phosphorus ester flame retardant. *See Ricciardi, e.g.,* in the Title and the Abstract. Ricciardi defines a "minor portion" as meaning "less than

half." Ricciardi at column 3, lines 31-33. Thus, Ricciardi relates to replacing less than half of a liquid phosphorus ester flame retardant between 15 and 500 percent by weight melamine.

However, Ricciardi is silent regarding a carbon dioxide frothing process. Neither Eiben nor Webster discusses the use of melamine as a flame retardant. The Examiner has impermissibly resorted to hindsight analysis in an attempt to obtain the claimed process.

Moreover, as amended, claim 31 recites that the foam composition passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Thus, even if Ricciardi, Eiben and Webster could be properly combined, and they cannot be, it is evident from Grace '893 (discussed above) that not all melamine-containing foams pass both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test.

Thus, even in combination, Ricciardi, Eiben and Webster would not have provided a reasonable expectation of success in obtaining a carbon dioxide frothing process that provides a foam composition that passes the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test.

Claims 30, 32-40 and 43 depend, either directly or indirectly, from independent claim 31. Thus, for the same reasons that Ricciardi, Eiben and Webster would not have suggested the process of claim 31, Ricciardi, Eiben and Webster would not have suggested the process of claims 30, 32-40 and 43. Moreover, the Examiner has failed to explain why each of claims 30, 32-40 and 43 would allegedly have been obvious over Ricciardi, Eiben and Webster.

A *prima facie* case of obviousness has not been established. Applicants respectfully request that this rejection be reconsidered and withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all of the presently outstanding rejections. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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